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The Effect of Macroeconomic Conditions on Applications to Supplemental Security Income

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Abstract: This study examines whether macroeconomic conditions affect applications to the Supplemental Security Income program. Specifically, we focus on the impact of unemployment rate on under age 18 applications. Using data from 2002 through 2012, we found that a higher unemployment rate is associated with an increased intention to apply for Supplemental Security Income benefits for both disabled adults and children. However, the effect is much higher for adults. These findings suggest that under age 18 applications of Supplemental Security Income is sensitive to the macroeconomic conditions.

Keywords: Social Security, Supplemental Security Income, disabled children, unemployment rate

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I. Introduction

Disability insurance applications are countercyclical. One explanation is that unemployed individuals who exhaust their unemployment insurance benefits use disability insurance to maintain income levels. However, it is unclear whether under age 18 applications to Supplemental Security Income (SSI) are affected by macroeconomic conditions, such as high unemployment rate. The intuition might be that macroeconomic conditions have little or no effects on under age 18 applications to SSI since only a very small proportion of the under age 18 population is actually working. However, a different hypothesis may exist. Adults and families who live with a disabled child may be more likely to apply for the SSI program when the unemployment rate increases for two reasons. First, unemployment makes some families who were not eligible for the SSI program eligible. Second, the poor performance of the labor market may create a feeling of strain and pressure, which possibly causes some families to apply for SSI. By analyzing these two types of families, it is not irrational to believe that macroeconomic conditions, especially the unemployment rate, affects under age 18 applications to the SSI program.

The recession of 2007 to 2009 is the longest and most severe economic downturn the United States has experienced since the 1929 Great Depression, with the unemployment rate only peaking once at 10.1 percent in October 2009. The 2007 to 2009 recession left 14 million people unemployed, and many Americans were negatively affected by this general slowdown in economic activity. Among those who suffered, the disabled population may merit particular attention. This populace includes both disabled adults and disabled children. Disabled adults who experience

a furlough may face the loss of earnings. They may encounter special barriers in finding new jobs, including discrimination. Meanwhile, families with a disabled child may also face financial difficulties. The terrible recession of 2007 to 2009, on the other hand, offers us an opportunity to examine the effect of macroeconomic conditions on applications to SSI. By using 2002-2012 data provided by the Social Security Administration (SSA), U.S. Census, and Bureau of Labor Statistics, we found that under age 18 applications to SSI increased as the unemployment rate increased.

II. Background Information

The SSA provides disability benefits to eligible disabled adults and children under Title XVI of the *Social Security Act*. As a Federal income supplement program, SSI is designed to provide supplemental income to aged and disabled people who have little or no income and resources. The goal is to help recipients meet basic needs. Unlike most of the programs administered by the SSA, SSI is paid for by U.S. Treasury general funds, instead of Social Security taxes or Social Security trust funds. The SSI program makes monthly payments to people who are age 65 or older or who are disabled, which includes the blind. Disabled children may also be eligible for SSI.

However, several eligibility requirements must be fulfilled. First, a candidate must have income and resources below certain limits. Income limits may vary from state to state and also depends on the applicator's living arrangement. In 2014, the maximum monthly SSI amounts are $721 for an eligible individual, $1,082 for an eligible couple, and $361 for an essential person. The actual amount granted to eligible people equals the maximum amount minus their monthly countable income. Some types of income do not count towards total income. For example, SSA does not count food stamps or the first $20 of an applicant's major monthly income. Meanwhile, individual resources -- including real estate, bank accounts, cash, and financial investments -- cannot be worth more than $2,000, and no more than $3,000 for a couple. There are exceptions, however, such as the worth of an applicant's home and burial funds below certain amount.

Second, recipients must be either age 65-years-if-age or older, disabled, or blind. Three general rules apply in order to determine whether a person is disabled. An eligible person may have (1) a physical or mental impairment that prohibits him or her from participating in any substantial, gainful activity; (2) an impairment that may result in death; or (3) an impairment that has existed or will exist for more than one year.

If a person meets the qualifications, the SSA will send the case to the Disability Determination Services, which will make the disability decision.

According to an evaluation report conducted by the Office of the Inspector General, the SSA has received an increasing number of disability applications since 2007. From 2007 to 2011, the SSA experienced a 27-percent increase on both Title II and Title XVI applications. These findings prove that disability insurance applications are countercyclical, but the effect of macroeconomic conditions on under age 18 applications to SSI is still unclear and will be examined in the next section.

III. Data and Method

A. Data

In this study, we relied on three data sources to estimate the impact of unemployment rate on SSI application.

First, we used publicly accessible tables provided by the SSA of 2002-2012 SSI applications at the state level.

Second, we obtained the Bureau of Labor Statistics state-level unemployment rate data of corresponding years.

Third, we used U.S. Census state-level demographic data collected to supplement unemployment rate data. Data includes the educational attainment, marital status, percentage of female, percentage of non-white, and percentage of under 18 population.

Combining data on SSI applications by state and by year with the data of the total population by state and by year, we calculated the proportion of SSI applications among the total population for each state and each year (including Washington D.C.). The SSA not only provided the total number of SSI applications, but also supplied them for three age ranges, which included under 18 years, 19-to-64 years, and over 65 years; therefore, we were able to calculate exclusive SSI application rates for three population groups, which allowed us to compare the varied impacts of increases in state unemployment rates on SSI among different age groups.

B. Methods

The main question we sought to address was whether labor-market conditions effected the intention to apply for SSI for children and to what degree. In theory, if we could observe every individual's work history and SSI file, we could then conclude the exact degree of impact of the unemployment rate on SSI application. Unfortunately, such data is not available. As a result, we had to estimate the degree of impact by using state fixed effect ordinary least square regression.

This discussion lead us to econometric specification. We used the following model to make estimates:

$$\text{SSI application rate}_{s,t} = \beta_0 + \beta_1\, \text{unemploy}_{s,t} + \beta_2\, \text{female}_{s,t} + \beta_3\, \text{educ}_{s,t} + \beta_4\, \text{white}_{s,t} + \beta_5\, \text{mst}_{s,t} + \beta_6\, \text{under18}_{s,t} + \text{state fixed effects} + \text{error}_{s,t} \quad (1)$$

As described earlier, the key explanatory variable is the unemployment rate for each state (and Washington D.C.), and in each survey year, we also included the percentage of the under age 18 population in each state. We also included other demographic characteristics as covariates, including percentage of female, percentage of white, educational attainment, and marital status. In addition to these variables, we included each state's fixed effects that generically control for differences across survey years and across states of residence. In this specification, the state fixed effects are sixty indicator variables (equal to one if the statement is true, and equal to zero if the statement is false). Among 60 indicator variables, 50 indicator variables

are for 50 states and Washington D.C. and ten indicator variables are for 11 survey years from 2002 to 2012.

IV. Results

The first set of empirical results is displayed in **Table 1**. We found that a higher unemployment rate is associated with an increased intention to apply for the SSI program in the under age 18 group; this effect is statistically significant at the 5% level. For every one percentage point increase in the unemployment rate, we expect to observe a 0.002 percentage point increase in under age 18 SSI applications. This result's p-value is 0.037.

The second set of empirical results is displayed in **Table 2**. We found that a higher unemployment rate is also associated with an increased intention to apply for SSI in the 19-to-64 age group; this effect is statistically significant at the 1% level. For every one percentage point increase in unemployment rate, we observed a 0.019 percentage point increase in the age 19-to-64 group's SSI applications. This result's p-value is 0.000.

The third set of empirical results is displayed in **Table 3**. We found that a higher unemployment rate is not associated with an increased intention to apply for SSI in the over-age 64 group; this result's p-value is 0.465. This finding is logical, since many people of this age group do not work or live with working-age people; therefore, their intentions to apply for SSI are not affected by a higher unemployment rate.

These findings suggest that increases in unemployment rate will increase intention to apply for SSI for both under-age 65 adults and children. However, the coefficient of adults is 9.5 times larger than that for children. These findings reflect the expected direction, since adults under age 65 are directly affected by labor market performance.

V. Conclusions

The depth and persistence of the 2007 to 2009 recession has led many researchers and policy makers to question what behavioral responses we can expect in answer to fluctuations in the business cycle. In this study, we found that weak labor market conditions provide incentives for both adults and families with a disabled child to apply for SSI benefits. Additionally, we found that these effects are more pronounced among adults who are under 65-years-old. The fact that the effect of macroeconomic conditions on under-age 18 SSI applications are consistent with our hypothesis strongly suggests that the reasons for this effect increased for a number of eligible families that are motivated to avoid potential financial difficulty. However, further research is needed to determine which one of two mechanisms is responsible for the majority of the increases in under-age 18 applications. In sum, our work suggests that sharp downturns in the labor market, such as the weakness that was plaguing the U.S. labor market between 2007 and 2009, have significant consequences for increasing applications to SSI.

VI. Tables & Graphs

Table 1:

State Fixed Effects Model of SSI Application Rate by Unemployment Rate		
		Ages 0 to 18
	1	2
Unemployment rate	0.011	0.002
	[0.001]*	[0.001]*
Education		0.001
		[0.001]
White		-0.003
		[0.001]*
Female		0.006
		[0.003]
Persons under 18 years, percent		0.001
		[0.002]
Constant	0.088	0.119
	[0.010]	[0.194]

Notes: The data come from the Social Security Administration, U.S. Census, and Bureau of Labor Statistics. The data come from survey year 2002 to 2012. The regression in the first column does not contain controls for demographic characteristics. All regressions include state fixed effects. Robust standard errors are in parentheses. * indicate significant at the five percent level.

Table 2:

State Fixed Effects Modle of SSI Application Rate by Unemployment Rate		
	Ages 19 to 64	
	1	2
Unemployment rate	0.041	0.019
	[0.004]*	[0.003]*
Education		0.005
		[0.002]*
White		0.011
		[0.003]*
Female		0.014
		[0.012]
Persons under 18 years, percent		-0.022
		[0.006]*
Constant	0.415	-0.675
	[0.026]	[0.682]

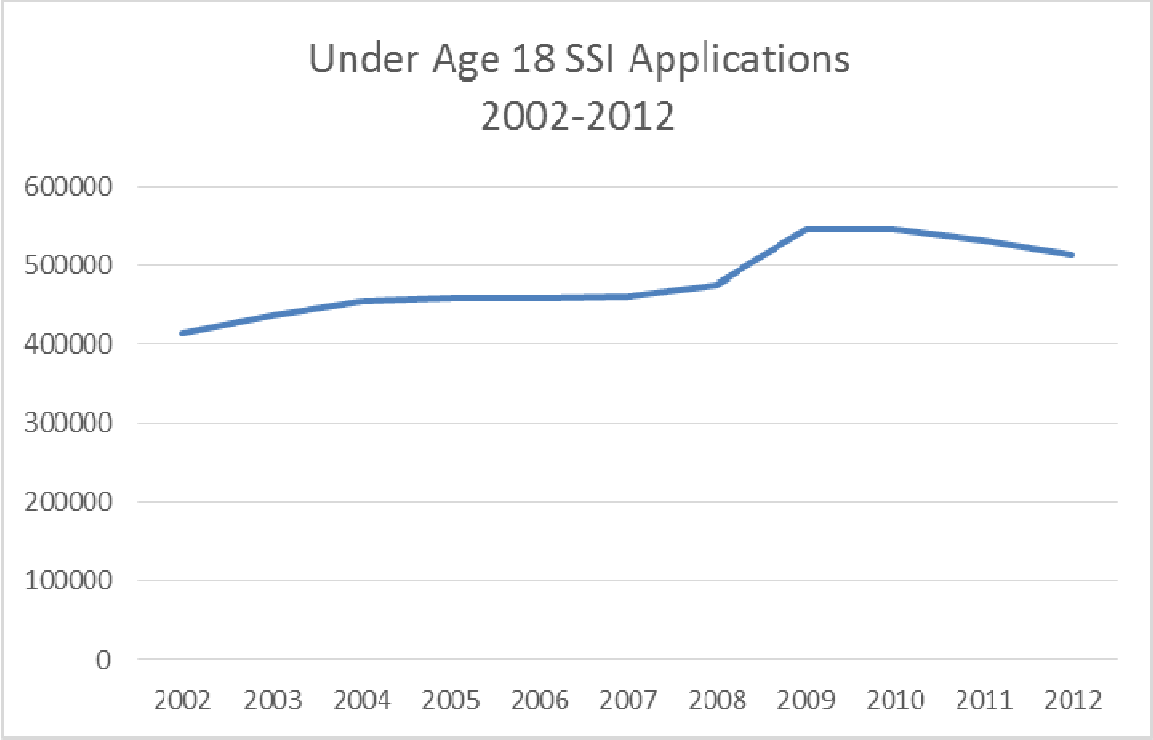
Notes: The data come from the Social Security Administration, U.S. Census, and Bureau of Labor Statistics. The data come from survey year 2002 to 2012. The regression in the first column does not contain controls for demographic characteristics. All regressions include state fixed effects. Robust standard errors are in parentheses. * indicate significant at the five percent level.

Table 3:

State Fixed Effects Model of SSI Application Rate by Unemployment Rate		
		Ages 65 and over
	1	2
Unemployment rate	0.004	0.001
	[0.001]*	[0.001]
Education		0.003
		[0.001]*
White		0.001
		[0.001]
Female		0.014
		[0.006]*
Persons under 18 years, percent		-0.01
		[0.003]*
Constant	0.039	-0.748
	[0.006]	[0.328]

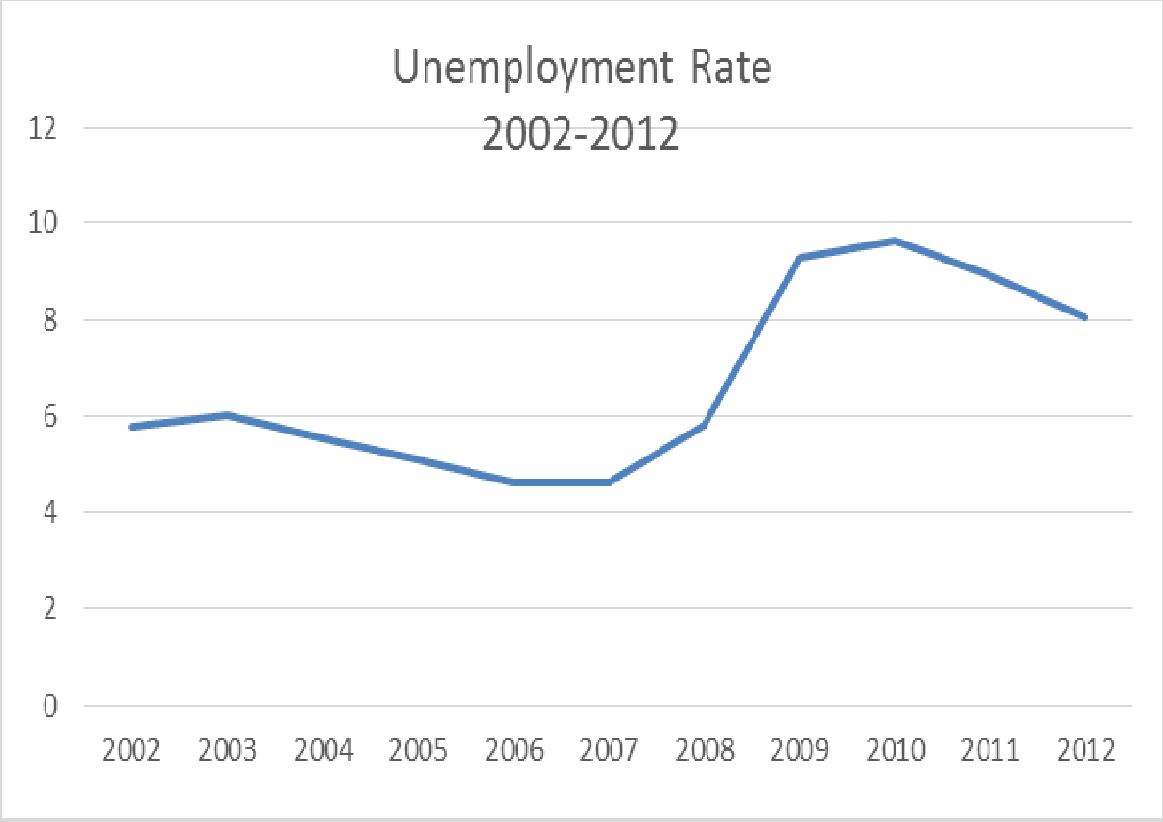
Notes: The data come from the Social Security Administration, U.S. Census, and Bureau of Labor Statistics. The data come from survey year 2002 to 2012. The regression in first column does not contain controls for demographic characteristics. All regressions include state fixed effects. Robust standard errors are in parentheses. * indicate significant at the five percent level.

Figure 1:



Note: The data come from the Social Security Administration, year 2002 to 2012.

Figure 2:



Note: The data come from the Bureau of Labor Statistics, year 2002 to 2012.

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